

### ABSTRACT OF THE DISCLOSURE

[0021] Apparatus for controlling a thermal conductivity profile of a pedestal in a semiconductor wafer processing system. One embodiment of the apparatus is a thermal shim that is positioned between a wafer retention device (e.g., electrostatic chuck) and a pedestal. The shim controls the thermal conductivity between the wafer retention device and the pedestal. In one embodiment, the thermal shim has a low thermally conductive region and a high thermally conductive region. In a further embodiment, the low thermally conductive region is a hole. By having a hole in the center of the shim, thus forming an annulus, an air gap is formed between the wafer retention device and the pedestal such that less heat will be transferred through the air gap as compared to the high thermally conductive region of the shim.